



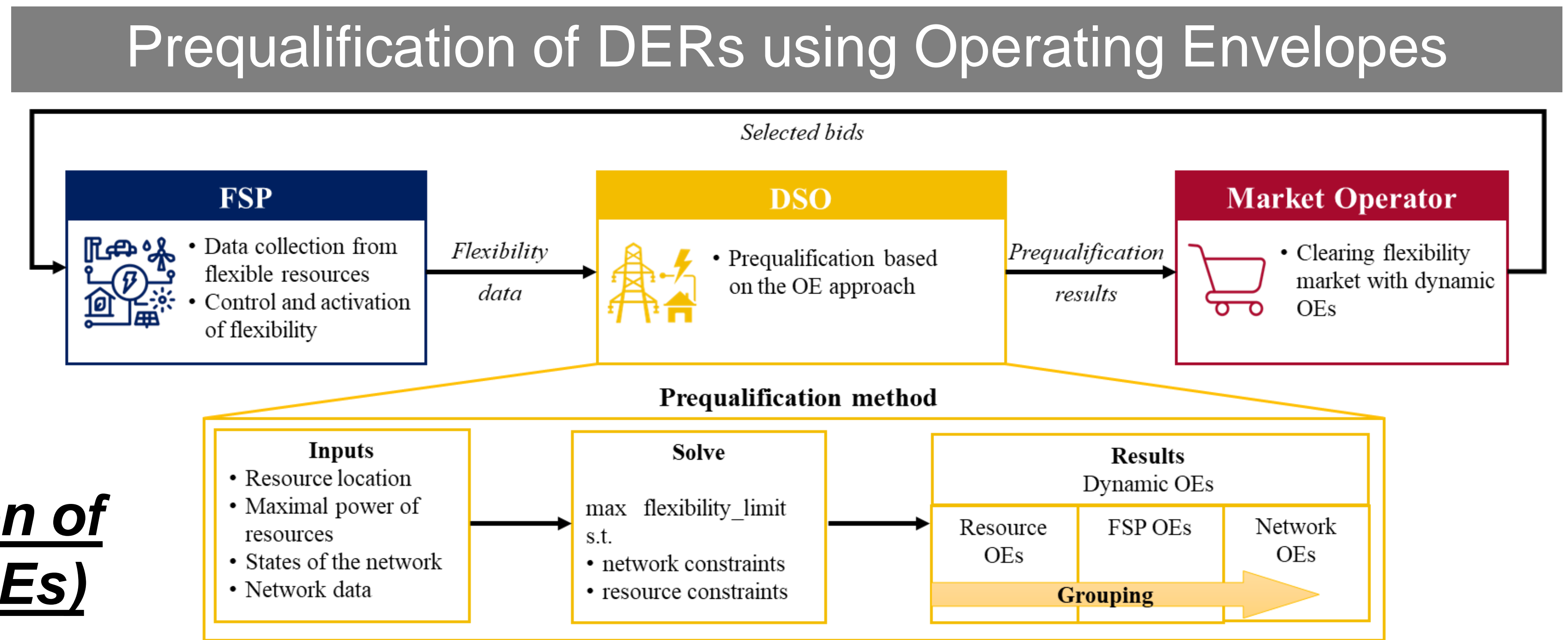
283 - Embedding operating envelopes in the market design to unlock the flexibility potential of distribution grids

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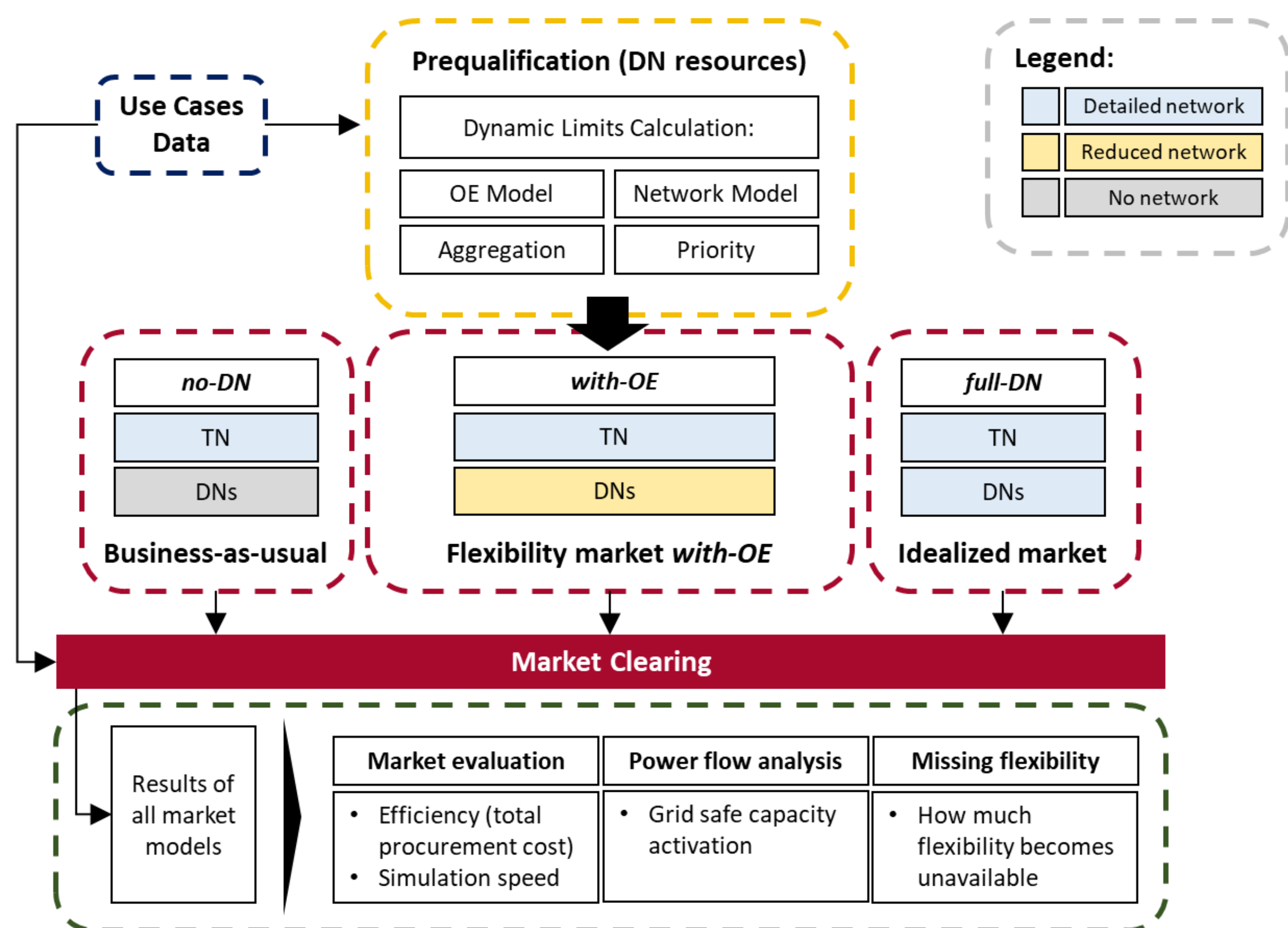
Scope and Motivation

- Increasing amount of DERs
 - Higher flexibility need for TSOs
- How can DERs provide flexibility to TSOs markets while ensuring operational security of DNs?

Proposition: dynamic prequalification of DERs using Operating Envelopes (OEs)



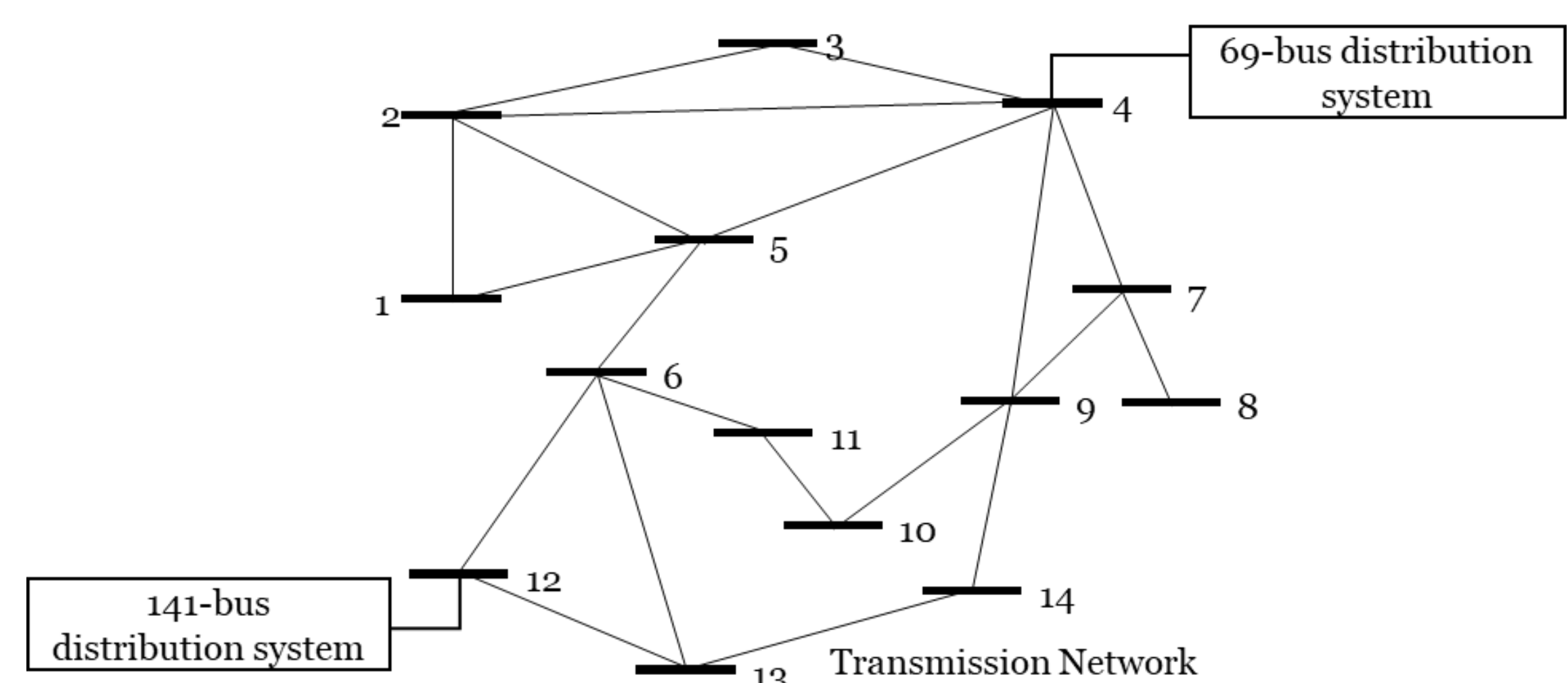
Proposition and Benchmarks



Use Cases

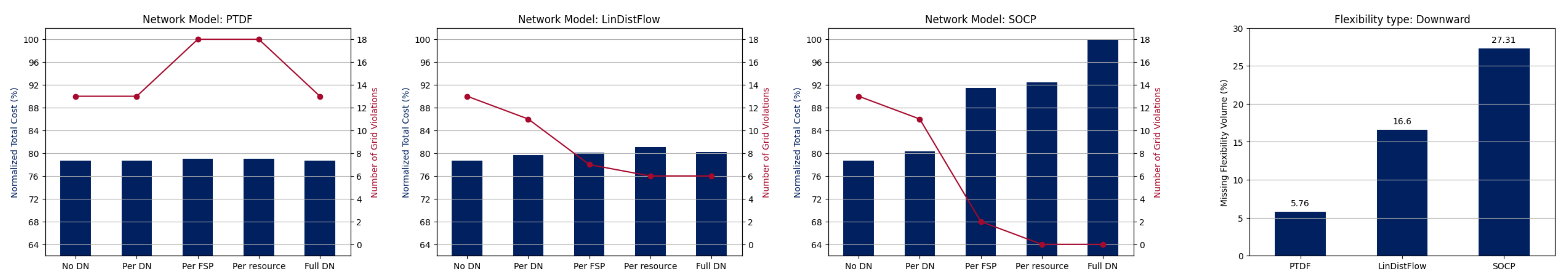
Case-1: DERs are flexible loads; TSO requires downward flexibility (current landscape).

Case-2: DERs are flexible loads and generation; TSO requires upward flexibility (future landscape).



Results and Conclusions

Case-1



1. Trade-off between procurement cost and grid violations;
2. OE per resource leads to safest procurement;
3. LinDistFlow as a good abstraction of network model;
4. Flexibility market doesn't account for grid losses.

5. Trade-off between available flexibility and grid safety.

Case-2

